PROFICIENCY TESTING ACCURACY IN THE UNITED STATES

Daniel C. Edson, M.S., MT(ASCP), President
American Proficiency Institute
Traverse City, Michigan

Objective

To study the 10-year performance trends of laboratories enrolled in API proficiency testing programs.

Methods

American Proficiency Institute, one of the largest proficiency testing providers in the world serving over 12,000 laboratories, studied the performance characteristics and trends of our subscribers over a 10 year period from 1994 to 2004. Failure rates for selected tests were recorded from proficiency testing results submitted in 3 Test Events per year over the 10 years.

Results

Performance accuracy for microbiology proficiency samples has steadily improved from 1994 – 2004.

In 1994, 35% of laboratories failed positive Urine cultures compared to 7.3% in 2004. Over 23% failed positive *N. gonorrhoeae* cultures in 1994 compared to 6% in 2004. Nearly 15% failed positive Strep cultures in 1994 contrasted with < 3% in 2004. The percent of failures for Strep A Antigen dropped from 10% in 1994 to nearly 1% in 2004.

Failure rates for non-microbiology analytes has also improved for most analytes studied. In 1994, nearly 19% of laboratories failed Cholesterol compared to 3.2% in 2004. Similar improvements were seen for Glucose, Sodium, Potassium, Creatinine, HDL Cholesterol, Hemoglobin, and Prothrombin Time; these results are compared with a published CDC study.

The number of laboratories performing Waived Tests has increased substantially; acceptable performance for waived tests in the API programs ranged from 85.1 – 99.8%.

Conclusions

1) Failure rates for all analytes studied have declined over 10 years but problem areas exist.
2) Continuing education is needed for microbiology laboratories.
3) The number of labs performing waived tests has increased substantially; overall accuracy is quite good.

Proficiency Testing Failures
1994 - 2004
Selected Microbiology Analytes

Analyte	1994 % Failures	2004 % Failures
***N. gonorrhoeae* Culture**		
Positive Specimen	**23.3**	**6.0**
Negative Specimen	**7.8**	**0.6**
Strep Culture		
Positive Specimen	**14.9**	**2.8**
Negative Specimen	**9.0**	**1.0**
Urine Culture		
Positive Specimen	**35.0**	**7.3**
Negative Specimen	**6.1**	**1.9**
Strep A Antigen	**9.9**	**1.3**

Selected Quantitative Analytes

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Analyte	Criteria	CDC (a)	1994 API	2004 API
Cholesterol	± 10%	13.1	18.7	3.2
Glucose	± 10%	15.0	15.6	2.4
Sodium	± 4 mmol	9.7	16.9	5.5
HDL Cholesterol	± 30%	11.8	16.4	3.6
Creatinine	± 15%	8.3	5.7	2.4
Hemoglobin	± 30%	9.1	4.3	1.2
Potassium	± 0.5 mmol	11.5	6.3	1.1
Prothrombin Time	± 15%	6.7	12.1	3.2

a. CDC Study - 1994 Data (Stull et al., JAMA 1998:279; 463-467)

Waived Test Performance
1994 - 2004

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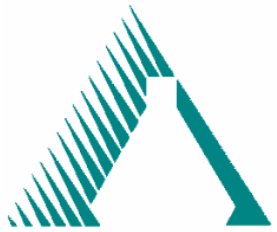
Analyte	# Reporting	% Correct	# Reporting	% Correct
Strep A Antigen	866	90.1	3412	97.7
Urinalysis pH	1055	95.2	5087	99.8
Fecal Occult Blood	N/A	-	4395	99.5
Sed Rate	N/A	-	1786	85.1
H. pylori	53	91.3	1098	99.1



American Proficiency Institute Data 1994 - 2004